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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/719,069 | 11/21/2003 | Brian Wehrung | | 2247 |

7590 01/03/2006

Scott D. Sanford, Esq.
O'MELVENY & MYERS LLP
Embarcadero Center West
275 Battery Street
San Francisco, CA 94111-3305

EXAMINER

SHAPIRO, JEFFERY A

ART UNIT PAPER NUMBER

3653

DATE MAILED: 01/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/719,069 | Applicant(s) WEHRUNG ET AL. | |
| | Examiner Jeffrey A. Shapiro | Art Unit 3653 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7,8 and 30-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7,8 and 30-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Claim Objections

1. Claim 33 is objected to because of the following informalities: the use of the acronym (LPTD) should be deleted. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 7, 8, and 30-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al (US 6,185,474 B1) in view of Soraoka et al (US 6,526,330 B2). Nakamura discloses a distributed control system (see figure 1) having a host computer (30) corresponding to Applicant's higher level controller, said host computer including an exposure information management program (33), which manages jobs and communicates information in response to queries from exposure units concerning work information. See col. 5, lines 28-60. A semiconductor exposure unit (10) has an exposure work information management program (13) and an equipment control program (12) which corresponds to Applicant's lower level controller. Note that the exposure unit (10) may be construed as a "neighborhood." The local goals are construed to be formulated by the exposure management program (33) with input from elements (13, 14 and 34).

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Nakamura does not expressly disclose, but Soraoka discloses the details of a wafer transfer/transport apparatus (202, 204, 208, 9, 10 and 92. See col. 5, lines 52-61, col. 7, lines 34-57 and col. 8, lines 12-21 of Soraoka. Note that zones can be construed to be the track or rail portion near an exposure unit (10) of Nakamura or one of the bays (2) of Soraoka.

Both Nakamura and Soraoka are considered to be analogous art because they both concern semiconductor wafer manufacture.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to have used the wafer transport system of Soraoka in the wafer manufacturing system of Nakamura.

The suggestion/motivation would have been provided by Soraoka, for example, at abstract, lines 4-7 and col. col. 5, lines 52-61, col. 7, lines 34-57 and col. 8, lines 12-21, which describe use of a transport system for wafers in such a wafer manufacturing system as Nakamura. Additionally, one ordinarily skilled in the art would have recognized a need to transport wafers between processing stations.

Note also that whether or not the manufacturing product is a semiconductor wafer, pharmaceutical or magnetic storage disk, the system of Nakamura will still work and function as Applicant's claimed system.

Regarding routing, note that Nakamura's exposure work information management program performs optimal routing based on various factors. This program has to route the wafers to the correct exposure unit so as to have a particular batch of wafers processed.

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Regarding regulation of the speeds of the various transport devices, not that the robots and transfer means of Saraoka must run by motors, which must speed up and slow down to a stop in front of a particular processing station in order to transfer wafers to a wafer robot at that processing station.

Regarding the destination announce message, note that Nakamura's figures 2 and 3, which describes a query as to whether or not the necessary work information has been received. Destination information and status can be construed to be such information that one ordinarily skilled in the art would need to use in Nakamura's system in order for it to properly transport wafers between stations.

4. Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al (US 6,185,474 B1) in view of Jackson et al (US 6,039,316). Nakamura discloses a distributed control system (see figure 1) having a host computer (30) corresponding to Applicant's higher level controller, said host computer including an exposure information management program (33), which manages jobs and communicates information in response to queries from exposure units concerning work information. See col. 5, lines 28-60. A semiconductor exposure unit (10) has an exposure work information management program (13) and an equipment control program (12) which corresponds to Applicant's lower level controller. Note that the exposure unit (10) may be construed as a "neighborhood." The local goals are construed to be formulated by the exposure management program (33) with input from elements (13, 14 and 34).

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Nakamura does not expressly disclose, but Jackson discloses the details of a wafer transfer/transport apparatus (100) having micro-jets (202) actuated by individual controllers/computational elements (604 and 606). There are first level controllers (620-622) are coupled to second level controller (608). See figures 1 and 6 and col. 6, line 60-col. 7, line 21 of Jackson. Note that zones can be construed to be the track or conveying surface on which said jets (202) reside. Note also that col. 3, lines 41-47 describe this system as being used with numerous objects, including semiconductor wafers. Col. 3, line 67-col. 4, line 2 describes that jets (202) can be engage a mechanical drive connected to transportation rollers.

Both Nakamura and Jackson are considered to be analogous art because Nakamura concerns semiconductor wafer manufacture that requires transportation of wafers between production stations and Jackson teaches a wafer handling transporter using microelectromechanical (MEMS) devices.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to have used the wafer transport system of Jackson in the wafer manufacturing system of Nakamura.

The suggestion/motivation would have been provided by Jackson, for example, at col. 8, lines 15-40, which describe use of a transport system for wafers that vary in size in such a wafer manufacturing system as Nakamura's. Additionally, one ordinarily skilled in the art would have recognized a need to transport wafers between processing stations.

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Note also that whether or not the manufacturing product is a semiconductor wafer, pharmaceutical or magnetic storage disk, the system of Nakamura will still work and function as Applicant's claimed system.

Regarding routing, note that Nakamura's exposure work information management program performs optimal routing based on various factors. This program has to route the wafers to the correct exposure unit so as to have a particular batch of wafers processed.

Regarding regulation of the speeds of the various transport devices, note that air jet actuators (202) apply forces to the object to move it, and that increasing or decreasing said forces affects the acceleration of the object and that sensor (203) senses the object. See Jackson, col. 4, line 52-col. 5, line 63.

Regarding rotation of the object, Jackson also describes rotation of the object at col. 4, lines 42-45.

Regarding the destination announce message, note that Nakamura's figures 2 and 3, which describes a query as to whether or not the necessary work information has been received. Destination information and status can be construed to be such information that one ordinarily skilled in the art would need to use in Nakamura's system in order for it to properly transport wafers between stations.

Regarding a third control thread, note Jackson, col. 8, lines 15-39 which describe that the number of levels of control is based on the size of the object detected by the first level controllers, which other higher levels of control being established based on that reading.

Response to Arguments

5. Applicant's arguments filed 8/31/05 have been fully considered but they are not persuasive. Applicant asserts that Nakamura's exposure units (10-30) do not communicate between themselves and do not use control threads. Nakamura's Claim 1 describes "communication means for performing communication with external units." See col. 16, lines 37-38. Col. 14, lines 35-42 describe an embodiment in which the steppers (1021-1024) are recipients of data files instead of a server. Therefore, the steppers (10-30) are construed to communicate with each other, passing data files between them. A control thread is construed to be nothing more than a computer program that computes data and passes files to other computer programs or memory. Therefore, since Nakamura's semiconductor exposure units have control programs (12 and 13), it is construed that these exposure units are controlled by control threads. The control threads of various units communicate with each other through communication control program (11).

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey A. Shapiro whose telephone number is (571)272-6943. The examiner can normally be reached on Monday-Friday, 9:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald P. Walsh can be reached on (571)272-6944. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Jeffrey A. Shapiro
Examiner
Art Unit 3653

December 27, 2005



DONALD Z. WALSH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600